In The Claims:

1.   A method for allocating system resources in a multi-platform communication system, comprising:

     providing a plurality of individual transponding nodes;

     processing a plurality of local user signals at a ground hub to compensate for differential propagation delays to any one of a plurality of remote users;

     assigning each of said plurality of remote users a profit value, which is dependent upon certain predetermined user criteria;

     assigning each of said plurality of remote users one or more resource cells in platform-code space depending upon service requirements of each of said plurality of remote users;

     wherein each resource cell assigned to a particular user enables him to transmit signals to or from the hub through a particular one of said transponder nodes and using a particular code.

2.   The method of claim 1, wherein each of said plurality of individual transponding nodes is independently selected from one of the following system types: a space-based system, a high altitude platform system, or a tower based cellular network.

1   3.   The method of claim 2, wherein said
2 high altitude platform system is comprised of a
3 plurality of manned/unmanned airships.

1   4.   The method of claim 2, wherein said
2 high altitude platform system is comprised of a
3 plurality of high altitude balloons.

1   5.   The method of claim 1, wherein said
2 system utilizes a TDMA technique.

1   6.   The method of claim 1, wherein said
2 system utilizes a FDMA technique.

1   7.   The method of claim 1, further
2 comprising:
3   determining a total profit/utility value
4 for the system based partly on said assigned user
5 utility value.

1   8.   The method of claim 6 wherein said
2 total profit/utility value is maximized according to
3 the following constraints:

4
$$\sum_{i=1}^{Nu} \delta_{ij} P_{ij} \le P_j$$

5
$$\delta_i = \underset{j=1}{\overset{n_i}{\mathrm{OR}}}\, \delta_{ij}$$

6

7
$$\sum_{i=1}^{Nu} \delta_i b_i \le B$$

1   9.   A mobile wireless communication system
2 for a variety of different mobile user types,
3 comprising:
4   a plurality of individual transponding
5 nodes;
6   a plurality of individual resource cells
7 each associated with a particular one of said
8 plurality of individual transponding nodes and a
9 particular one of a plurality of available codes;
10   a plurality of mobile terminals, each of
11 which is assigned to operate in one or more of said
12 plurality of individual resource cells;
13   a profit value assigned to each of said
14 plurality of mobile terminals; and
15   a central hub for establishing links with
16 one or more of said plurality of mobile terminals and
17 for assigning one or more of said resource cells to
18 each of said plurality of mobile terminals and for
19 assigning said profit value to each of said plurality
20 of mobile terminals.

1   10. The system of claim 9, wherein said
2 central hub establishes links to said users through
3 one or more of said plurality of transponding nodes
4 wherein the specific transponding node and code used
5 to complete each of said links are determined by said
6 resource cells assigned to said user.

1   11. The system of claim 9, wherein said
2 central hub pre-processes signals for forward link

3 transmission such that they are radiated with
4 compensating time delays to an intended one of said
5 plurality of mobile users who coherently receives all
6 such signals intended for him; and

7   wherein said central hub post-processes
8 received signals to introduce compensating time
9 delays such that all such signals received from a
10 particular remote user may be coherently processed
11 together.

1   12. The system of claim 9, wherein each of
2 said plurality of individual transponding nodes is
3 independently selected from one of the following
4 system types: a space-based system, a high altitude
5 platform system, or a tower based cellular network.

1   13. The system of claim 12, wherein said
2 high altitude platform system is comprised of a
3 plurality of manned/unmanned airships.

1   14. The system of claim 12, wherein said
2 high altitude platform system is comprised of a
3 plurality of high altitude balloons.

4   15. The system of claim 9, wherein the
5 system profitability is maximized by giving system
6 priority to users having a preselected profit value.

1   16. The system of claim 9, wherein power
2 to a particular one of said plurality of mobile
3 terminals is increased by increasing the number of

4 resource cells assigned to said particular user
5 and/or by increasing the number of said plurality of
6 platforms assigned to said particular user.

1   17. The system of claim 11, wherein at
2 least one of said plurality of mobile terminals is
3 assigned resource cells in platform-code space for
4 said return link that are different from said
5 resource cells in platform-code space assigned for
6 said forward link.
1

1   18. A method for allocating system
2 resources in a multi-platform communication system,
3 comprising:
4   providing a plurality of mobile users;
5   establishing a link between each of said
6 plurality of mobile users and a ground hub through
7 one or more of a plurality of transponding nodes;
8   processing a plurality of local user
9 signals at said ground hub;
10   assigning each of said plurality of mobile
11 users an individual profit value indicative of a
12 particular type of service requested by said mobile
13 user; and
14   transmitting signals to or from said ground
15 hub through one or more of said transponder modes and
16 one or more resource cells.

1   19. The method of claim 18, wherein each
2 of said plurality of transponding nodes is

3   independently selected from one of the following

4   platform system types: a space-based system, a high

5   altitude platform system, or a tower-based cellular

6   network.

1   20. The method of claim 18, further

2   comprising:

3   assigning each of said plurality of mobile

4   users one or more of said resource cells, which are

5   each associated with a particular one of said

6   plurality of transponding modes and a particular one

7   of a plurality of available codes.

1   21. The method of claim 18, further

2   comprising:

3   determining a total profit/utility value

4   for the system based partly on said assigned mobile

5   user profit value.